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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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MARSHALL, GERSTEIN & BORUN LLP
233 SOUTH WACKER DRIVE
6300 SEARS TOWER
CHICAGO, IL 60606-6357

EXAMINER	
ANGELL, JON E	

ART UNIT	PAPER NUMBER
1635	

MAIL DATE	DELIVERY MODE
05/12/2009	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	09/964,042	WEICHSELBAUM ET AL.	
	Examiner	Art Unit	
	J. E. Angell	1635	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 February 2009*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-5,10-13 and 16-23* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-5,10-12 and 16-23* is/are rejected.

7)☒ Claim(s) *13* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 2/17/2009 has been entered.

2. Applicant's arguments are addressed on a per section basis. The text of those sections of Title 35, U.S. Code not included in this Action can be found in a prior Office Action. Any rejections not reiterated in this action have been withdrawn as being obviated by the amendment of the claims and/or applicant's arguments.

3. Claims 1-5, 10-13, 16-23 are currently pending and are addressed herein.

Claim Rejections - 35 USC § 112

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claims 22 and 23 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. **This is a new matter rejection**.

37 CFR 1.118 (a) states that "No amendment shall introduce new matter into the disclosure of an application after the filing date of the application".

MPEP §2163.06 notes:

If new matter is added to the claims, the examiner should reject the claims under 35 U.S.C. 112, first paragraph - written description requirement. In re Rasmussen, 650 F.2d 1212, 211 USPQ 323 (CCPA 1981).

MPEP §2163.02 teaches that:

Whenever the issue arises, the fundamental factual inquiry is whether a claim defines an invention that is clearly conveyed to those skilled in the art at the time the application was filed...If a claim is amended to include subject matter, limitations, or terminology not present in the application as filed, involving a departure from, addition to, or deletion from the disclosure of the application as filed, the examiner should conclude that the claimed subject matter is not described in that application.

MPEP §2163.06 further notes:

When an amendment is filed in reply to an objection or rejection based on 35 U.S.C. 112, first paragraph, a study of the entire application is often necessary to determine whether or not "new matter" is involved. Applicant should therefore specifically point out the support for any amendments made to the disclosure. (Emphasis added).

Claims 22 and 23 are newly presented claims that encompass a method for treating a patient with a radiation-resistant cancer by administering a therapeutically effective amount of a HSV comprising a modification of an inverted repeat region such that only one γ1 34.5 gene expresses an active gene product. (Emphasis added). The claims encompass treating any type of cancer that is radiation-resistant and using any HSV that comprises a modification of an inverted repeat region such that only one γ1 34.5 gene expresses an active gene product. Looking to the specification for support, there does not appear to be support for the entire scope encompassed

by the instant claims. It is noted that Applicants have pointed to page 10, lines 16-24 of the specification for support, which discloses:

> Results indicate that irradiation alone resulted in a modest delay in xenograft growth compared to control tumors confirming radiation resistance of the SQ-206 cell line. While tumor volume reduction did not occur until 13 days after infection of xenografts with R7020 as described in Example 2, combining irradiation with R7020 resulted in tumor volume regression one week earlier than tumors treated with R7020 alone. In addition, the nadir in tumor volume occurred significantly earlier in xenografts receiving both irradiation and R7020 as compared to xenografts receiving R7020 alone (day 20 versus day 30).

It is also noted that page 10, lines 25-29 discloses:

> These results demonstrate for the first time dramatic antitumor efficacy of R7020 in the treatment of experimental human tumors frequently resistant to common cancer treatments and suggest that, while R7020 is an effective antitumor agent by itself, combining irradiation with R7020 also provides more rapid and complete tumor cell destruction.

Based on the above cited disclosure, the specification only appears to provide support for treating radiation resistant epidermal carcinoma cells (SQ-206 cells are radiation-resistant epidermal carcinoma cells, as indicated on page 7, lines 1-3) using R7020. Should applicants traverse, they are asked to provide the exact page and line numbers where support can be found.

To the extent that the claimed compositions and/or methods are not described in the instant disclosure, claims 22 and 23 are also rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention, since a disclosure cannot teach one to make or use something that has not been described.

6. Claims 1-5, 10-12, 16-23 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for methods as claims in claims 1-5, 10-12, 16-21 were the HSV is R702 and the method of claims 22-23 where the cancer is radiation-resistant epidermal cancer and wherein the HSV is R7020 does not reasonably provide enablement for the full scope encompassed by the claims. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims.

Factors to be considered in determining whether a disclosure meets the enablement requirement of 35 USC 112, first paragraph, have been described by the court in *In re Wands*, 8 USPQ2d 1400 (CA FC 1988).

> *Wands* states on page 1404,
> "Factors to be considered in determining whether a disclosure would require undue experimentation have been summarized by the board in Ex parte Forman. They include (1) the quantity of experimentation necessary, (2) the amount of direction or guidance presented, (3) the presence or absence of working examples, (4) the nature of the invention, (5) the state of the prior art, (6) the relative skill of those in the art, (7) the predictability or unpredictability of the art, and (8) the breadth of the claims."

The nature of the invention

The nature of the invention is a therapeutic method for treating cancer using a mutant HSV. Thus, the invention is in a class of invention which the CAFC has characterized as "the unpredictable arts such as chemistry and biology." Mycogen Plant Sci., Inc. v. Monsanto Co., 243 F.3d 1316, 1330 (Fed. Cir. 2001).

The breadth of the claims

The claims are very broad with respect to the genus of HSVs that can be used in the claimed methods. Specifically, in their broadest embodiments, the claims encompass the use of any HSV comprising a modification of an inverted repeat region such that only one γ1 34.5 gene expresses an active gene product. It is noted that, given the broadest reasonable interpretation of the claims, the claims encompass any HSV that only one functional γ1 34.5 gene, such as an HSV having the one functional γ1 34.5 gene but which also has any other possible deletion or substitution to any part, or even every part of the HSV genome. It is also noted that claims 2-5, 10-12 identifies a number of specific modifications that the HSV can be required to have. Therefore, the claims encompass using a large number of different HSVs. With respect to claims 22 and 23 it is noted that these claims are also broad in the sense that they encompass treating any type of radiation-resistant cancer.

The state of the prior art and the unpredictability of the claimed invention

The prior art of record does not teach reducing mass of a non-central nervous system tumor using any HSV that has only one functional γ1 34.5 gene wherein the HSV is safe for administration to a patient. Nor does the prior art teach treating radiation-resistant cancer using said HSV. As indicated above, the claims are very broad with respect to number of different HSVs encompassed by the claims as well as the types of radiation-resistant cancers encompassed by claims 22 and 23. Therefore, the claims encompass using any of a myriad of different HSVs for treating a myriad of different radiation-resistant cancer types; however, the prior art provides little or no guidance for using the any of the claimed HSVs for treating cancer. Thus, there is a relatively incomplete understanding of the field of the broadly claimed invention.

In *In re Vaeck,* 947 F.2d 488, 495, 20 USPQ2d 1438, 1444 (Fed. Cir. 1991), the Court ruled that a rejection under 35 U.S.C. 112, first paragraph for lack of enablement was appropriate given the relatively incomplete understanding in the biotechnological field involved, and the lack of a reasonable correlation between the narrow disclosure in the specification and the broad scope of protection sought in the claims.

Working Examples and Guidance in the Specification

The specification only discloses that R7020 HSV was effective for treating radiation-resistant epidermal cells (i.e., SQ-206 cells) as well as prostate adenocarcinoma cells and hepatoma adenocarcinoma cells.

Quantity of Experimentation

Considering the breadth of the claims with respect to the number of different HSVs as well as the different types of radiation-resistant cancers encompassed by the claims, additional experimentation would be required in order to practice the full scope encompassed by claims. The amount of additional experimentation would be enormous considering and would amount to trial-and-error experimentation to determine which HSV encompassed by the claims would be effective in the claimed methods and which ones would not, and to determine which radiation-resistant tumors could be effectively treated with the HSVs. Furthermore, considering the relatively incomplete understanding of field, the elucidation of the HSVs which would be effective in the claimed methods would amount to a significant advancement in the state of the art.

Level of the skill in the art

The level of the skill in the art is deemed to be high.

Conclusion

Considering the nature of the invention, the breadth of the claims, the unpredictable nature of the invention as recognized in the prior art, the limited amount of working examples and guidance provided, and the high degree of skill required to practice the invention, it is concluded that the specification does not provide an enabling disclosure for the instant claims. Therefore, additional experimentation is required before one of skill in the art could make and use the claimed invention. The amount of additional experimentation required to perform the broadly claimed invention is undue.

Response to Arguments

7. The Declaration of Dr. Roizman under 37 CFR 1.132 filed 2/17/2009 is sufficient to overcome the rejection of claims under 35 U.S.C. 103 based upon the teachings of Advani and Carroll.

8. Applicant's arguments, filed 2/17/2009, with respect to the rejection(s) of claim(s) under 35 U.S.C. 103 have been fully considered and are persuasive in view of the amendment to the claims. Therefore, the rejection has been withdrawn. However, upon consideration of the instant claims, a new ground(s) of rejection has been set forth for the reasons indicated herein.

Claim Objections

9. Claim 13 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to J. E. Angell whose telephone number is 571-272-0756. The examiner can normally be reached on Monday-Thursday 7:00 a.m.-5:00 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Douglas Schultz can be reached on 571-272-0763. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/J. E. Angell/
Primary Examiner, Art Unit 1635